

# Hypothesis Explaining Efficiency of and Variable Light Spectrum Requirements of Disparate Plant Species in Organic Photosynthesis

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## Introduction

Despite intensive microscopic study as well as computer modeling of the dynamics of photosynthesis, researchers have, as yet, been unable to account for the remarkable near-100% efficiency of organic photosynthesis. Not all plant species are capable of such efficient conversion of photons into chemical energy and it is important to note that different plant species, for their own photosynthetic process to be optimized, require light of varying combinations of wavelengths from one species to the next.

Quantum physics likely holds the answer to this mystery, speculation about which has heretofore been the domain of biologists.

## Abstract

In a previous publication seeking to explain the quality of lipids which enables them to be heated by microwave energy at a faster rate than water, it was hypothesized that lipid structures consisting of proteins interweaved like a wicker basket feature, as a result of the orbital dynamics of electrons, certain sections of electron cloud are less likely than average to contain an electron at any given time, thereby allowing EM to penetrate the cloud more easily and increasing the rate of resonance. This is because the strong covalent bonds where there is contact between those weaves of protein may slow the passage of electrons when they pass through the area of mutual bonding. The suggests that the probability of an electron being present in a specific part of an orbital zone, when an outside force is acting upon a given atom, is non-random and is asymmetrical.

Computer simulations dealing with chloroplasts (and all other physics simulations to date) have as one of their fundamental assumptions that electron positions in orbitals are equally likely to be at any given point in the orbit at any given time. It is the belief of this author that this assumption is rooted in the inability of researchers to accurately and robustly observe electron positions in real-time. While the most recent generation of computer simulations are of "atomic granularity," they do not have sub-atomic granularity. While it would not be necessary to map things like gluon bonds and quarks in order to simulate photosynthesis, it is necessary to accurately estimate the behavior of electrons, especially given that electrons have the ability to drastically alter the behavior of photons passing within the zone of influence of an atom. To accurately simulate photosynthesis, the dynamics of individual electrons must be accurately anticipated. Given that this author believes the current model of electron dynamics used in simulations to be faulty, I posit that any computer model based upon the assumption that electron positions are random and symmetrical would fail to reproduce the real-world observations of hyperefficient photon-to-electron conversion.

Chloroplasts, consisting of sheets of lipid-like interweaved proteins, could be predicted to distort the probability that a given electron will occupy a given region of a given orbital. Unlike lipids, rather than proteins being interweaved into a sphere, flat sheets of these protein weaves are arrayed within each chloroplast and each chloroplast is encoded to establish a unique but probabilistic spacing between these sheets. One chloroplast might have sheets at a spacing that is optimized for infrared light while another might be optimized for visible red or visible yellow, for example. This would explain why nearly every species of plant life has a different spectrum requirement to support optimized photosynthesis.

More tantalizing is a potential explanation for the high efficiency of organic photosynthesis with relation to existing photovoltaic systems. This, I believe, can be explained by the way in which interweaved proteins within chloroplasts alter electron-orbital dynamics.

Provided that these layers are always configured to be perpendicular to the flat surface of the leaf (this may explain why leaves face the Sun by design) photons approaching one of these sheets from a transverse direction would be met by an unusually high number of electrons on the side of the sheets exposed to the light. Although these proteins are positively ionized on the whole, a photon is agnostic to this and is only influenced by whether there are an abundance or paucity of electrons in the immediate vicinity (a small fraction of an atomic width.) If the interaction between the various atoms of the protein weave mutually influence the electrons of the others to occupy asymmetrical orbits, incoming photons would be met by a wall of electrons even when the net electrical charge is positive, thereby repelling photons that approach the nucleus and making light-to-heat conversion (waste) less likely. A light nudge from these electrons causes incoming photons to pass, instead, through an orbital zone devoid of electrons. *While passing through this zone, there is an increased probability that the discrete magnetism of the electrons around the boundary of this locally anionized zone will project their magnetism toward the center of the void, thereby slowing any photons passing through it substantially.* As an electron is merely a photon with more mass, the slowing of this passage gives the photon sufficient time to assume some of the mass associated with the Higgs Field of the atom in question.

Any photon which fails to convert into an electron due to its frequency being incompatible with the spacing in a given chloroplast has additional opportunities to generate an electron upon passage through additional chloroplasts which each tend to have slightly different spacings. The spacings are relevant because it is only when photon spin is minimized (i.e. at the peaks in phase) that conversions are most likely to occur. Spacings perfectly matched to the phase height of light are therefore most likely to lead to successful photosynthesis.

## **Conclusion**

Providing light with multiple opportunities to be converted into electrons whilst avoiding light-to-heat conversion events is at the heart of effective photosynthesis. In extant photovoltaic cells, there is no organic protein

structure to create the localized zones of anionization needed to bring about the aforementioned effects. Asymmetrical distribution of electrons within orbitals is a crucially important, unrecognized phenomenon which this author believes to underpin photosynthesis and therefore believes is also necessary for the creation of any highly efficient artificial photovoltaics which one may wish to design in the future.